

Tobamovirus Expression Vectors

TMV



TMV-Expression Vector

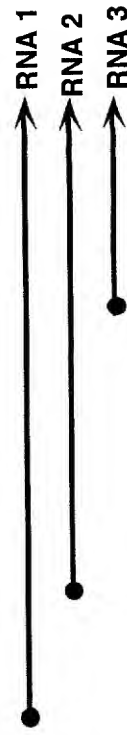


FIG. 1

Tobamovirus Vector for rGal-A Expression

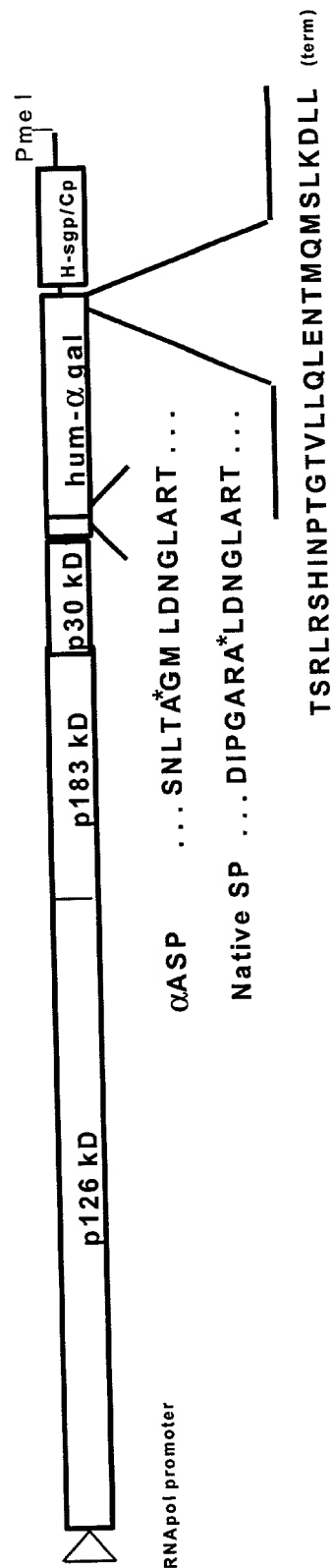


FIG. 2

Accumulation and Activity of WT rGal-A

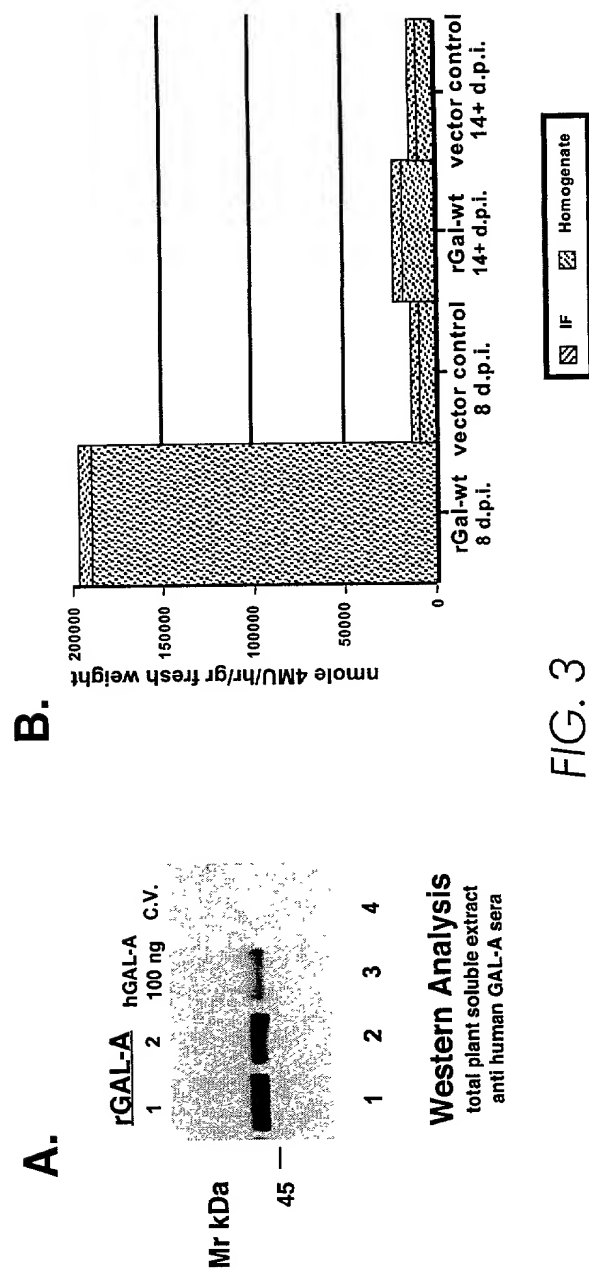


FIG. 3

Accumulation and Activity of WT and ER-Targeted rGal-A

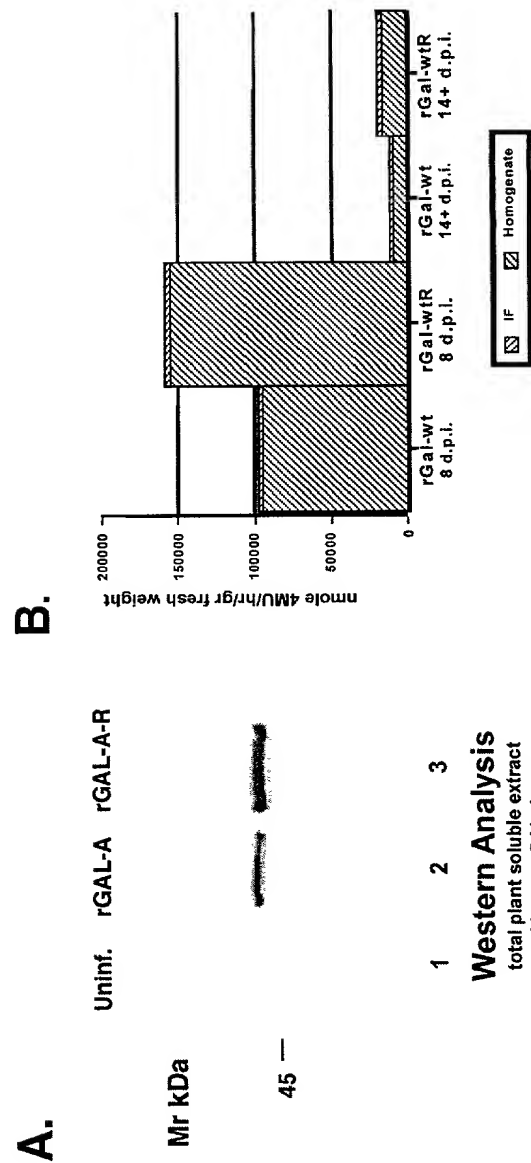


FIG. 4

Carboxy-Modifications to rGal-A

	-30	-20	-10
WT rGAL-A	TSRLRSHINPTGTVLLQL	ENTMQMSLKDLL	
WT rGAL-AR	TSRLRSHINPTGTVLLQL	ENTMQMSLKDLLSEKDEL	
rGAL-4	TSRLRSHINPTGTVLLQL	ENTMQMSL	
rGAL-4R	TSRLRSHINPTGTVLLQL	ENTMQMSLKDEL	
rGAL-8	TSRLRSHINPTGTVLLQL	ENTM	
rGAL-8R	TSRLRSHINPTGTVLLQL	ENTMSEKDEL	
rGAL-12	TSRLRSHINPTGTVLLQL		
rGAL-12R	TSRLRSHINPTGTVLLQL	SEKDEL	
rGAL-25	TSRLR		
rGAL-25R	TSRLRSEKDEL		
Control virus (GFP, AMP, IFN γ)			

* potential CTPP cleavage (Gene 58:177,1987).

FIG. 5

Western Blot Analysis of Carboxy-modified rGal-A

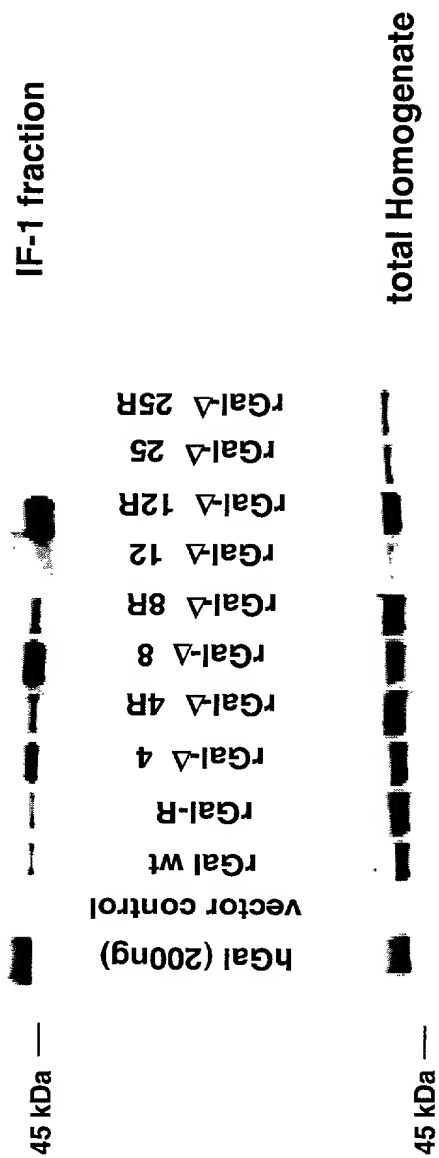
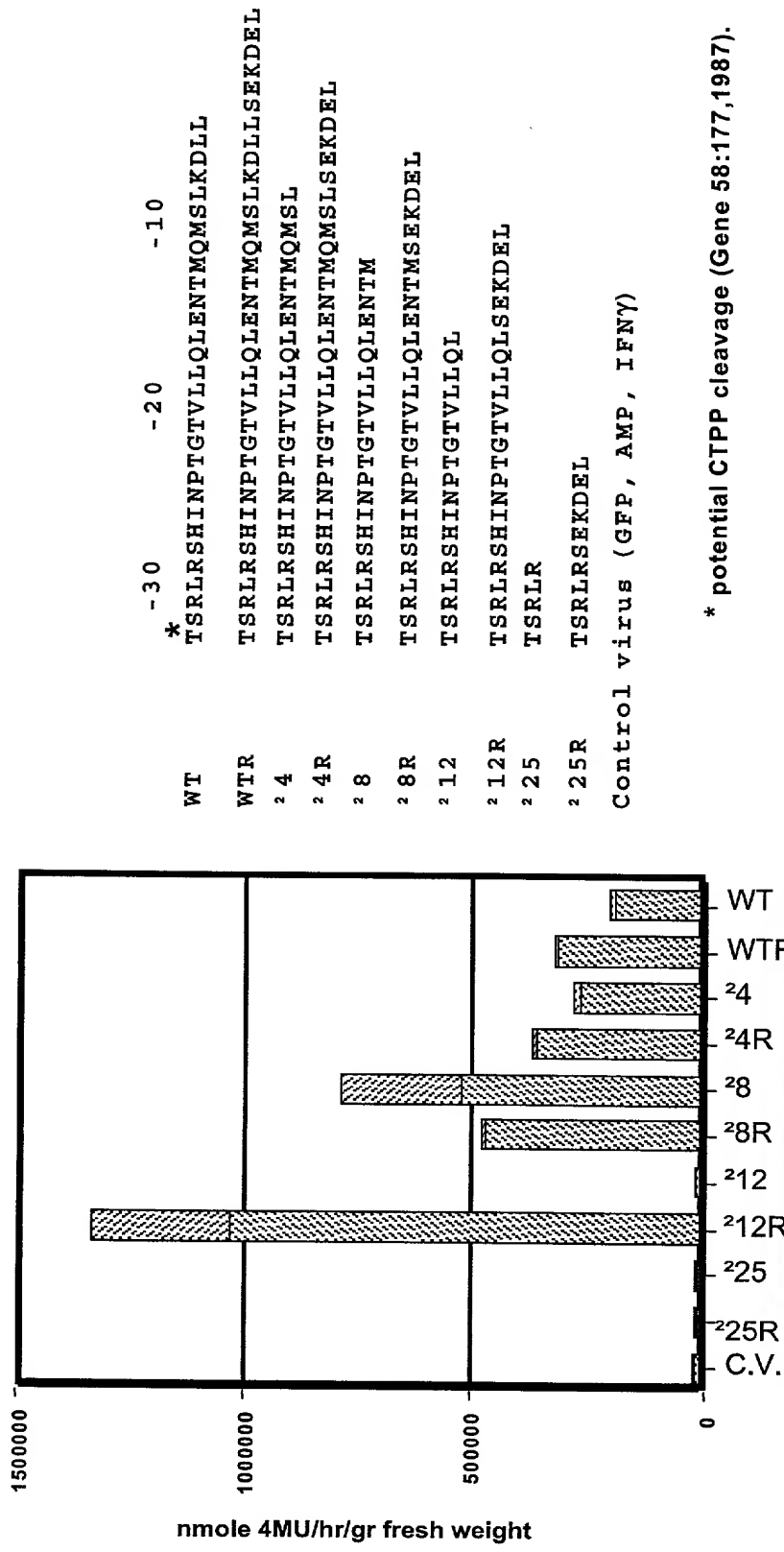


FIG. 6

Enzymatic Activity of Carboxy-Modified rGal-A



-30 -20 -10

* TSRLRSHINPTGTVLLQLENTMQMSLKDLL

TSRLRSHINPTGTVLLQLENTMQMSLKDLLSEKDEL

TSRLRSHINPTGTVLLQLENTMQMSL

TSRLRSHINPTGTVLLQLENTMQMSLKDEL

TSRLRSHINPTGTVLLQLENTM

TSRLRSHINPTGTVLLQLENTMSEKDEL

TSRLRSHINPTGTVLLQL

TSRLRSHINPTGTVLLQLENTMSEKDEL

TSRLR

TSRLRSEKDEL

Control virus (GFP, AMP, IFNY)

* potential CTPP cleavage (Gene 58:177,1987).

FIG. 7

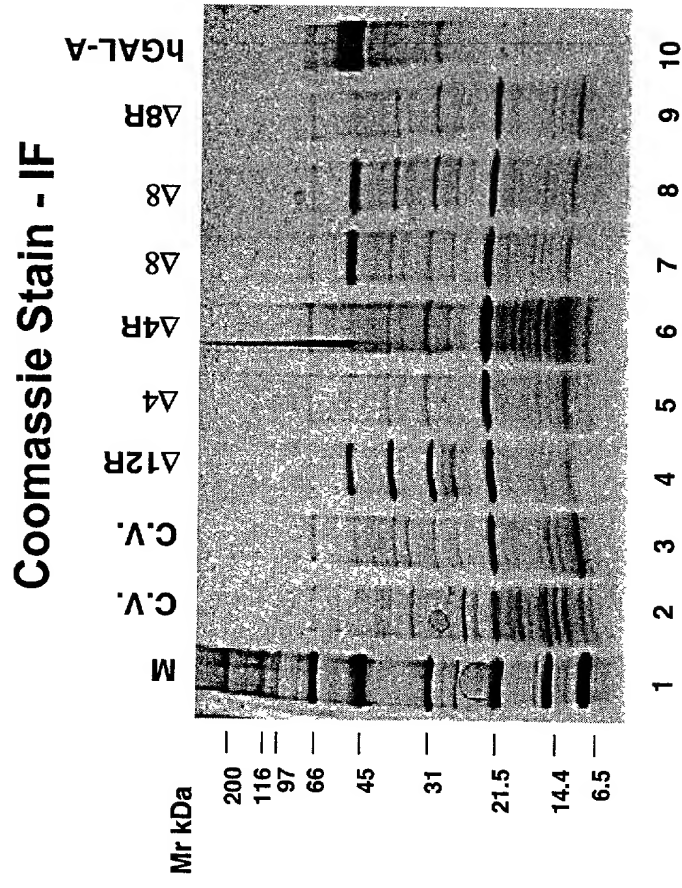


FIG. 8

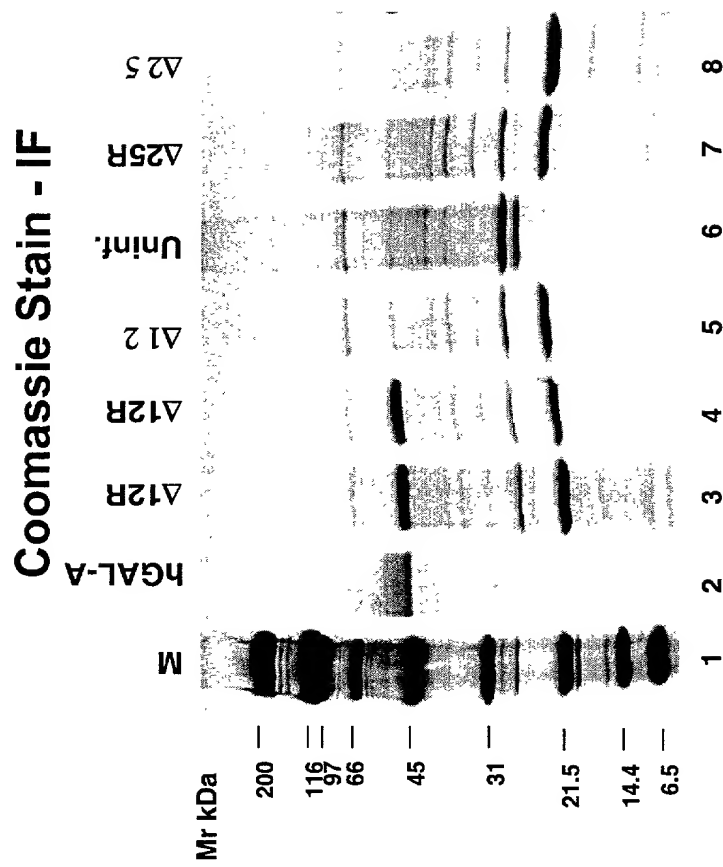


FIG. 9

Schematic of rGal-A Secretion

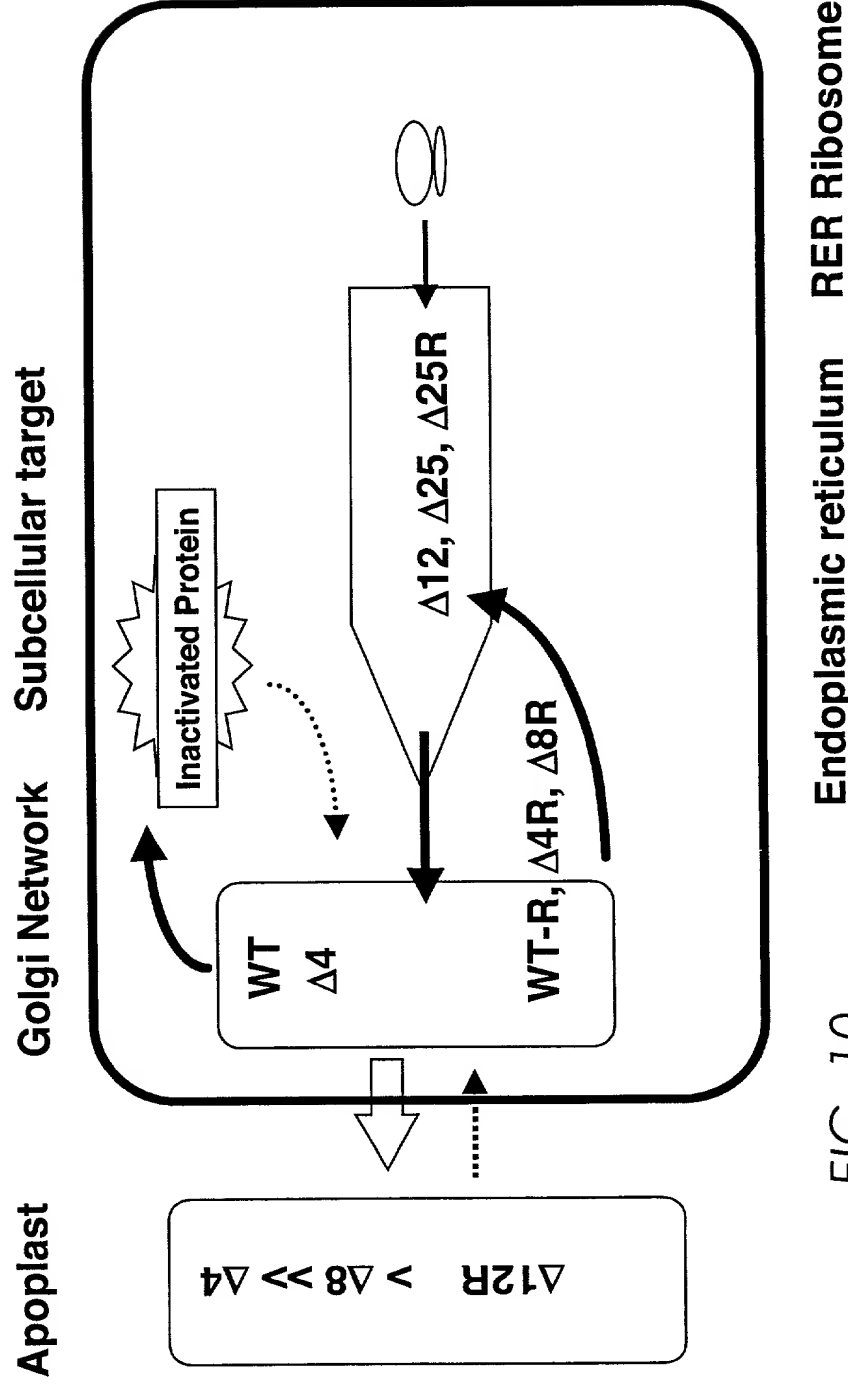


FIG. 10

FIG. 11

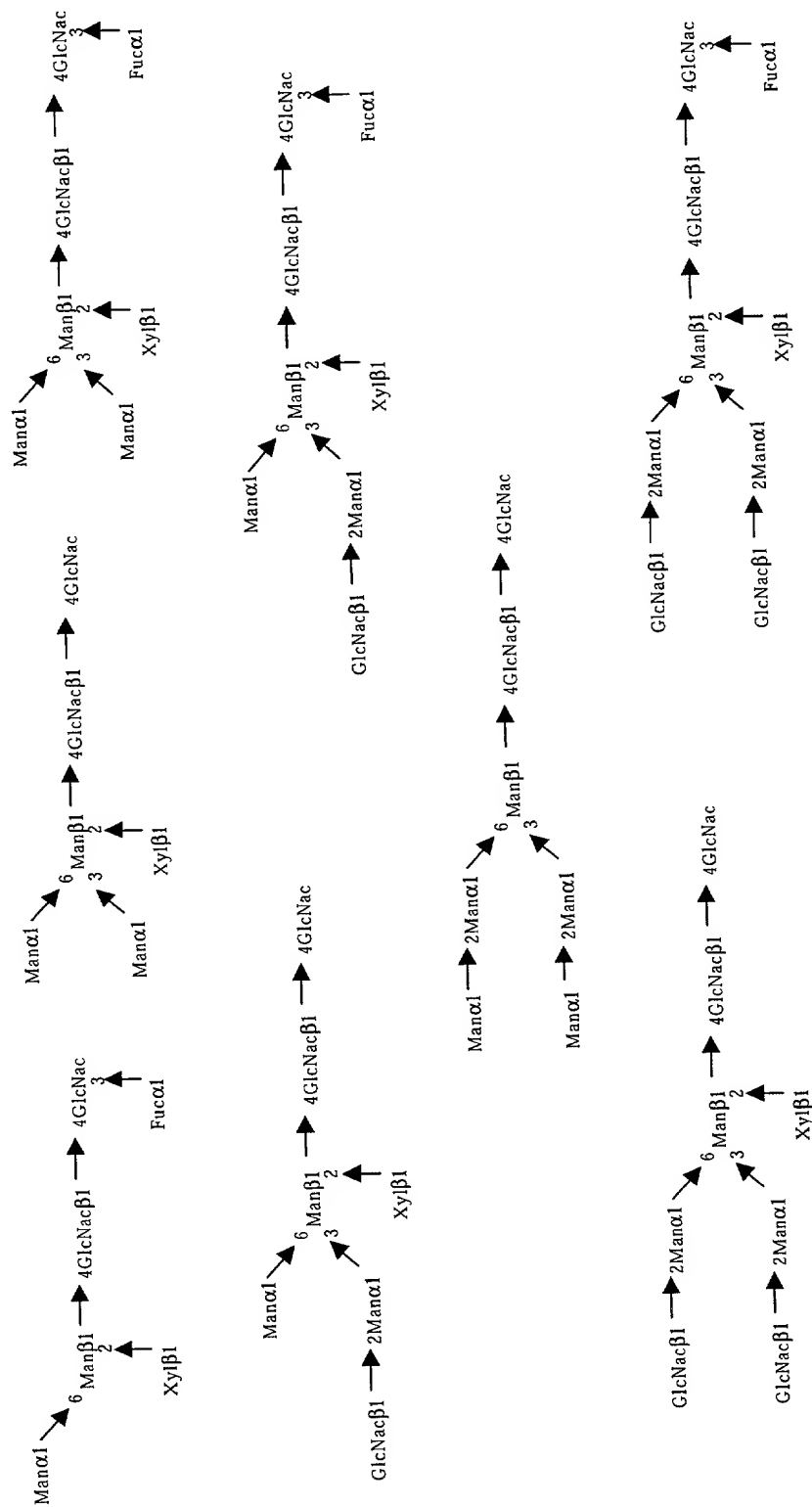


FIG. 12-1

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CAGACAGCTACCACATCAGCTTTGCTGGACACTGTCCGAGGAAACAACTCCTTGGTCAATGATCTAGCAAAGCGTCGTCT
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AGACGCTTATTGCTACCCGGGCGTATCCAGAATTCCAAATTACATTTTATAACACGCAAAATGCCGTGCATTGCGTTGCA
GGTGGATTGCGATCTTTAGAACTGGAATATCTGATGATGCAAAATCCCTACGGATCATTGACTTATGACATAGGCGGGAA
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GCAGCAATCAGGCAGAGTGTATGCCATTGCGCTACACAGCATATATGACATAACCAGCCGATGAGTTCGGGGCGGCACTCT
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GACGAAATCAACGCGTGTTTTTGCGCGATGGAGACAAGTTGACCTTTTCTTTTGCATCAGAGAGTACTCTTAATTATTG
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TTCAAAGGTTCCAATCTTTTTGTTGACGCGCAAGACTGGTGATATTTCTGATATGCAGTTTACTATGATAAGTGTCT
CCCAGGCAACAGCACCATGATGAATAATTTTGATGCTGTTACCATGAGGTTGACTGACATTTCAATTGAATGTCAAAGATT
GCATATTGGATATGTCTAAGTCTGTTGCTGCGCCTAAGGATCAAACTCAAAACCACTAATACCTATGGTACGAACGGCGCA
GAAATGCCACGCCAGACTGGACTATTGGAATAATTTAGTGGCGATGATTAAGGAAGTCTTAAACGCCACCGAGTTGTCTGG
CATCATTGATATTGAAAATACTGCATCTTTAGTTGTAGATAAGTTTTTGTAGTTATTTGCTTAAAGAAAAAAGAAAAAC
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GGACACTTCAATCCAAACGGAGTACCGGCTTTGCGACAGATTGTGTACCATTCAAAAAGATCAATGCAATATTTGGCC
CGTTGTTTGTAGTACTAGGCAATTACTGGACAGTGTGATTGAGCAGATTTTGTGTTTTTCAAGAAAAGACACCA
CGCGAGATTGAGGATTTCTCGGAGATCTCGACAGTCTGTCGGATGCTTGGAGCTGGATATATCAAAATACGA

FIG. 12-1

FIG. 12-2

CAAATCTCAGAATGAATTCCACTGTGCAGTAGAATACGAGATCTGGCGAAGATTGGGTTTTGAAGACTTCTTGGGAGAAG
 TTTGGAAACAAGGGCATAGAAAGACCACCCTCAAGGATTATACCGCAGGTATAAAACTTGCATCTGGTATCAAGAAAAG
 AGCGGGGACGTCACGACGTTTATTGGAACACTGTGATCATTGCTGCATGTTTGGCCTCGATGCTTCCGATGGAGAAAAT
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 GAGTGGGTTATACGAACTGGATCTCAACAGCGGTAAGATCCTTGAGAGTTTTGCCCCGAAGAACGTTTTCCAATGATG
 AGCATTTTAAAGTTCTGCTATGTGGCGCGGTATTTATCCGCTGTGACGCGGGCAAGAGCAACTCGGTCCGCGCATACA
 CTATTCTCAGAATGACTTGGTTGAGTACTACCACTCACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTAT

FIG. 12-2

FIG. 12-3

GCAGTGCTGCCATAACCATGAGTGATAACACTGCGGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACC
GCTTTTTTGCACAACATGGGGGATCATGTAACCTCGCCTTGATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGA
CGAGCGTGACACCACGATGCCTGCAGCAATGGCAACAACGTTGCGCAAACTATTAACTGGCGAACTACTTACTCTAGCTT
CCCGCAACAATTAATAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGG
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CACTGATTAAGCATTGCTAACTGTCAGACCAAGTTTACTCATATATACTTTAGATTGATTAAAACTTCATTTTTAATTT
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AGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTCTGCGCGTAATCTGCTGCTTGCAACAAAAAAC
CACCGCTACCAGCGGTGTTTTGTTTGGCGGATCAAGAGCTACCAACTCTTTTTCCGAAGGTAACTCGCTTCAGCAGAGCG
CAGATACCAAACTACTGTCTTCTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGCACCAGCTACATACCT
CGCTCTGCTAATCCTGTTACCACTGGCTGCTGCCAGTGGCGATAAGTCTGTCTTACCGGTTGGACTCAAGACGATAGT
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CGGGCATGTTAAGGGCGGTTTTTCTCTGTTTGGTCACTTGATGCTCCGCTGTAAGGGGGAATTTCTGTTTCATGGGGTA
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GTTTCCAGACTTTACGAAACACGGAACCGAAGACCATTCATGTTGTTGCTCAGGTGCGCAGACGTTTTGACAGCAGCAGTC
GCTTCAGCTTCGCTCGGCTATCGGTGATTCATTTCTGCTAACCAAGTAAGGCAACCCCGCCAGCCTAGCCGGGTCTCAACG
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AGGCTCTCAAGGGCATCGGTGAGATTTAGGTGACACTATA

CGCGGCTGGCTGG

FIG. 13-1

GTATTTTACAACAATTACCAACAACAACAACAACAGACAACATTACAATTACTATTTACAATTACAATGGCATAACA
CAGACAGCTACCACATCAGCTTTGCTGGACACTGTCCGAGGAAACAACCTCTGGTCAATGATCTAGCAAAGCGTCGTCT
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CATTAAACGGTGTGACAGCGAGGTCCGAATGGGATGTGGACAAATCTTTGTTACAATCCTTGTCCATGACGTTTTACCTGC
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TGGGATGAGATTTCCGTGGCTTTTGGGAACGCATTTCCCTCCGTGAAAGAGAGGCTCTTGAACAGGAAACTTATCAGAGT
GGCAGGCGACGCATTAGAGATCAGGGTGCCTGATCTATATGTGACCTTCCACGACAGATTAGTGAAGTACAAGGCCT
CTGTGGACATGCCTGCGCTTGACATTAGGAAGAAGATGGAAGAAACGGAAGTATGACAATGCACTTTTCAAGATTATCG
GTGTTAAGGAGTCTGACAAATTCGATGTTGATGTTTTTCCAGATGTGCCAATCTTTGGAAGTTGACCCAATGACGGC
AGCGAAGCTTATAGTCGCGTTCATGAGCAATGAGAGCGGTCTGACTCTCAGATTTGAACGACCTACTGAGCGCAATGTTG
CGCTAGCTTTACAGGATCAAGAGAAGGCTTCAGAGGTCATGCTGATGTTTACCTCAAGAGAAGTTGAAGAACCCTCCATG
AAGGCTTCGATGCCAGAGGAGATTACAATTAGCTGCTCTTGTGCGATCATCCGAATCGTCTATTTCTAAGAACGA
GGAGATAGAGTCTTTAGAGCAGTTTCATATGGCGACGCGAGATTGCTTAATTCGTAAGCAGATGAGCTCGATTGTGTACA
CGGTCGGATTAAGATTTCAGCAATGAAAACTTTATCGATAGCCTGGTAGCATCACTATCTGCTGCGGTGTCGAATCTC
GTCAAGATCCTCAAAGATACAGCTGCTATTGACCTTGAACCCGCTCAAAGTTTGGAGTCTTGGATGTTGCATCTAGGAA
GTGTTAATCAAACCAACGGCCAAGAGTATGATGCGGTGTTGTTGAACCCACGCGAGGAGTATCATGTGGCGCTTT
TGGAATATGATGAGCAGGGTGTGTTGACATGCGATGATTGGAGAAGAGTAGCTGTTAGCTCTGAGTCTGTTGTTTATTCC
GACATGGCGAACTCAGAACTCTGCGCAGACTGCTTGAACCGGAGAACCGCATGTCAGTAGCGCAAAGGTTGTTCTTGT
GGACGGAGTTCCGGGCTGTGGAAAAACCAAGAAATTTCTTCCAGGGTTAATTTTGATGAAGATCTAATTTTAGTACCTG
GGAAGCAAGCCCGGAAATGATCAGAGAGCTGCGAATTCCTCAGGGATTATTGTGCCCACGAAGGACAACGTTAAACC
GTTGATTTCTTCATGATGAATTTTGGGAAAAGCACACGCTGTGAGTTCAAGAGGTTATTTCATGTAAGGCTTGATGTT
GCATACTGGTTGTGTTAATTTTCTTGTGCGGATGTCATTGTGCGAAATTCATATGTTTACGGAGACACACAGCAGATT
CATACATCAATAGAGTTTCAGGATTCCTGTACCCGCGCCATTTTGCCAAATGGAAGTTGACGAGGTGGAGACACCGAGA
ACTACTCTCCGTTGTCCAGCGGATGTCACACATTATCTGAACAGGAGATATGAGGGCTTTGTGATGAGCACTTCTTCGGT
TAAAAAGTCTGTTTCCAGGAGATGGTCCGGGAGCGCGGTGATCAATCCGATCTCAAAACCTTGCATGGCAAGATCC
TGACTTTTACCAATCGGATAAAGAAGCTGTGCTTTCAAGAGGTTATTCAGATGTTTCACTCTGCATGAAGTGAAGGC
GAGACATACTCTGATGTTTCACTAGTTAGGTTAACCCCTACACCGGTCTCCATCATTGCAGGAGACAGCCACATGTTTT
GGTGCATTTGTAAGGCACACCTGTTGCTCAAGTACTACACTGTTGTTATGGATCCTTTAGTTAGTATCATTAGAGATC
TAGAGAACTTAGCTCGTACTGTTAGATATGTATAAGGTCGATGAGGAACACAATAGCAATTACAGATTGACTCGGTG
TTCAAAGGTTCCAATCTTTTGTGCGAGCGCCAAAGACTGGTGATATTTCTGATATGCAGTTTACTATGATAAGTGTCT
CCCAGGCAACAGCACCATGATGAATAATTTTGTGCTGTTACCATGAGGTTGACTGACATTTTCAATGAAATGTCAAAGATT
GCATATTGGATATGCTAAGTCTGTTGCTGCACCTAAGGATCAAATCAAACCACTAATACCTATGGTACGAACGGCGGCA
GAAATGCCACGCCAGACTGGAATTTGGAAAATTTAGTGCGGATGATTAAAGAAAACCTTAAACGCCACCGAGTTGTCTGG
CATCATTGATATTGAAAATACTGCATCTTTGGTTGTAGATAAGTTTTTTGATAGTTATTTGCTTAAAGAAAAAGAAAAAC
CAAAATAAAATGTTTCTTTGTTTCACTAGAGAGTCTCTCAATAGATGCTTAGAAAAGCAGGAACAGGTAACAATAGGCCAG
CTCGCAGATTTTGTATTTTGTGATTGTCAGCAGTTGATCAGTACAGACATGATTAAAGCACAACCCAAACAAAAGTT
GGACACTTCAATCCAAACGGAGTACCGGCTTTGAGACGATTGTGTACCAATCAAAAAGATCAATGCAATATTGCGCC
CGTTGTTTAGTGAGCTTACTAGGCAATTACTGGACAGTGTGATTTCAGCAGATTTTGTGTTTTTCAAGAAAGACACCA
GCGCAGATTGAGGATTTCTTGGAGATCTCGACAGTCAATGCGGATGGATGCTTGGAGCTGGATATATCAAAATACGA

FIG. 13-1

FIG. 13-2

[illegible]

TRANSGENIC VECTOR FOR rGCB EXPRESSION

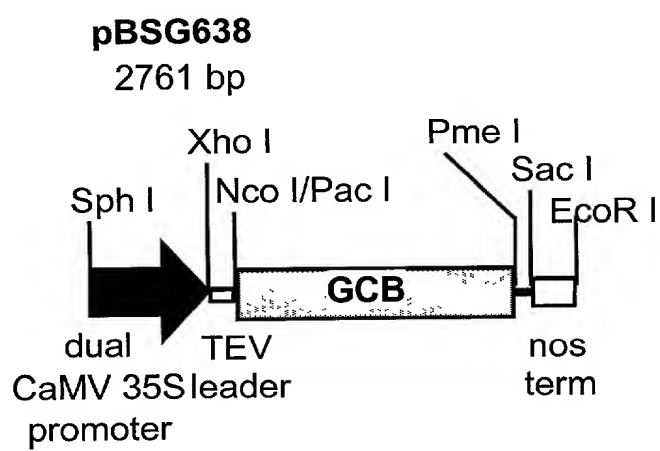


FIG. 14

VIRAL VECTOR FOR rGCB EXPRESSION

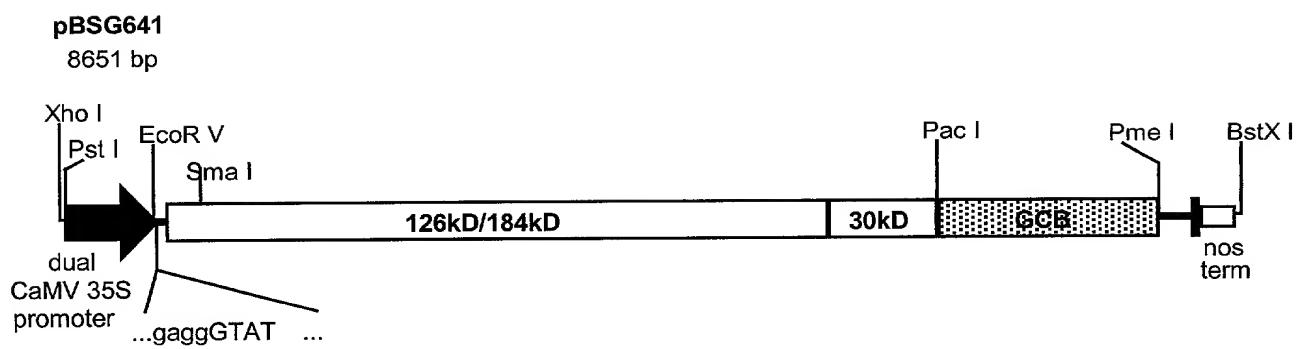


FIG. 15